

JOSE SERRANO

Research Chemist

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Education:

B.S., Chemistry, University of Puerto Rico, San Juan Campus, 1982

M.S., Analytical Biochemistry, University of Puerto Rico, San Juan Campus, 1985

Ph.D., Biochemistry & Molecular Biology; Cornell University School of Medicine, NY, 1989

USEPA-sponsored long term specialized education:

Advanced Mass Spectrometry of Nucleic Acids, Department of Medicinal Chemistry, University of Utah, Salt lake City, 1990-1991

Toxicology and Molecular Toxicology, Graduate Department of Toxicology, School of Medicine, University of Minnesota, Twin Cities, 1991-1993

Advanced Toxicogenomics, Center for Mass Spectrometry and Proteomics, University of Minnesota, Twin Cities 2005-2006

Employment:

1989-Present Research Biochemist, U.S. EPA, Duluth, MN

Research Interests and Skills:

Application of Molecular Biotechnology approaches (Advanced Bioinformatics, Genomics, Proteomics and Metabolomics) to the assessment/development of biomarkers of exposure to reactive chemicals in aquatic species; Characterization and quantification of ultra-trace levels of relevant and/or modified biological macromolecules from *in vivo* and *in vitro* studies by state-of-the-art techniques such as HPLC-UV/ electrochemical/ fluorescence detection, Capillary zone electrophoresis (CZE), Differential-in-gel electrophoresis (DIGE), PAGE, Western blots, Tandem-MS, GC-MS, LC-ESIqTOF/MS, MALDI-TOF/MS, LC-MALDI-TOFTOF/MS and Ion-qTrapMS; Analytical and Molecular Toxicology; DNA Recombinant Techniques; Protein Chemistry; Enzyme Biochemistry; Biosoftware applications; QSAR models

Professional Societies:

American Society for Mass Spectrometry (ASMS)

American Chemical Society (ACS)

Society of Toxicology (SOT)

Society for the Advancement of Chicanos/Latinos and Native Americans in Science (SACNAS)

Selected Appointments/Honors/Major Awards:

USEPA Innovation Research Grant Award, 1991

Scientific and Technological Achievement Award Level II, 1994, 1998

University of Minnesota, Department of Biochemistry & Molecular Biology, School of Medicine, Search Committee Appointee 1993-2008

University of Minnesota, Department of Chemistry, Search Committee Appointee, 1993-1998; 2000-2008

University of Minnesota, Adjunct Associate Professor, Departments of Chemistry & Biochemistry, 1992-1999

USEPA MED Performance Award: 1990; 1991; 1993; 1997; 2000–2010 (ten)

NHEERL Team Achievement Award: 2001 & 2004

Reviewer for Biochimica Biophysica Acta, Journal of Proteome Research, Analytical Chemistry, Nucleic Acids Research, Comparative Biochemistry & Physiology, and Environmental Toxicology & Safety

Invited appointee: Applied Biosystems North America assessment report group for advanced proteomics software applications, 2004-09

Invited presenter for Bioinformatics and MS-based Biotechnology applications: Applied Biosystems, 2005-2008

Selected Publications:

Salinas, K., J. Serrano, L. Higgins, L.B. Anderson, A.D. Benninghoff, D.E. Williams, M.J. Hemmer, and C. Walker. 2010. Isolation and identification of estrogen-responsive vitelline envelope protein fragments from

- rainbow trout (*Oncorhynchus mykiss*) plasma using mass spectrometry. *Mol. Reprod. & Develop.* (submitted)
- Serrano J., L. Higgins, B. Witthuhn, L. Anderson, J. Korte, P. Kosian, G. Holcombe, J. Tietge, and S. Degitz. 2010. In vivo assessment and potential diagnosis of xenobiotics that perturb the thyroid pathway: Differential protein profiling of *Xenopus laevis* brain tissue by 2D PAGE and peptide-labeling with isobaric Tags for Relative and Absolute Quantification (*iTRAQ*) following exposure to model T4 inhibitors. *Comp. Biochem. Physiol. D: Genomics and Proteomics* (in press)
- Serrano J., J. Korte, L. Higgins, B. Witthuhn, L. Anderson, R. Sternberg, M. Hornung, J. Tietge. 2010. Proteomic analysis of *Xenopus laevis* pituitary and thyroid stimulating hormone (TSH) alpha and beta isoforms. 2010. *J. Proteome Res.* (submitted)
- Serrano J., J. Tietge, and S. Degitz. 2010. In Vivo assessment and diagnosis of xenobiotics that perturb the thyroid pathway: Evaluating the potential of amphibian brain protein expression profiles as screening/diagnostic tests of Mode of Action-specific activity for endocrine disrupters. *J. Toxicol.* (submitted)
- Walker, C., J. Serrano, K. Salinas, P. Harris, and M. Hemmer. 2010. Estrogen-responsive plasma protein biomarkers in two Killifish Species. *Comp. Biochem. Physiol. D: Genomics and Proteomics* (in press)
- Ankley, G., R. Bennett, R. Erickson, D. Hoff, M. Hornung, R. Johnson, D. Mount, J. Nichols, C. Russom, P. Schmieder, J. Serrano, J. Tietge, and D. Villeneuve. 2009. Adverse outcome pathways: a conceptual framework to support ecotoxicology research and risk assessment. *Environ. Toxicol. Chem.* 29:730-741